

CLAIMS

1. A polypeptide which:

a) has phospholipase activity,

b) has an amino acid sequence which is at least 50 % identical to SEQ ID NO: 1, and

5 c) has one or more of the following amino acids at a position corresponding to SEQ ID NO: 1: D62Q/E/F/W/V/P/L/G; V60R/S/K; S85Y/T; G91R/E; R125K; V203T; V228A; T231R; N233R; L259R/V/P; a deletion D266*; and/or L269A.

2. The polypeptide of claim 1, which has one or more of the following amino acids at a position corresponding to SEQ ID NO: 1: D57G, V60G/C/L/Q, D62H/A, S83T, R84G/S/W;
10 G91A/V, L93K, D96W/F/G, E99K, R125K, L259S, F262L, G263Q, L264A, I265T, G266D, T267A/E and/or L269N and/or by a C-terminal extension, particularly AGGFS or AGGFSWRRYRSAESVDKTRATMTDAELEKKLNSYVQMDKEYVKNNQARS.

3. The polypeptide of claim 1 or 2 which has the sequence of SEQ ID NO: 1 with one of the following sets of alterations:

R84W +D96W +E99K +G263Q +L264A +I265T +G266D +T267A +L269N +270A +271G +272G +273F +274S +275WRRYRSAESVDKTRATMTDAELEKKLNSYVQMDKEYVKNNQARS
R84W +G91E +D96W +E99K +G263Q +L264A +I265T +G266D +T267A +L269N +270A +271G +272G +273F +274S +275WRRYRSAESVDKTRATMTDAELEKKLNSYVQMDKEYVKNNQARS
V60G +D62E +R84W +G91A +D96F +E99K +G263Q +L264A +I265T +G266D +T267A +L269N
R84W +G91R +L93K +D96G +E99K +G263Q +L264A +I265T +G266D +T267A +L269N +270A +271G +272G +273F +274S +275WRRYRSAESVDKTRATMTDAELEKKLNSYVQMDKEYVKNNQARS
V60G +D62F +R84W +G91A +D96W +E99K +G263Q +L264A +I265T +G266D +T267A +L269N +270A +271G +272G +273F +274S +275WRRYRSAESVDKTRATMTDAELEKKLNSYVQMDKEYVKNNQARS
R84W +S85Y +G91A +D96W +E99K +G263Q +L264A +I265T +G266D +T267A +L269N +270A +271G +272G +273F +274S +275WRRYRSAESVDKTRATMTDAELEKKLNSYVQMDKEYVKNNQARS
R84W +G91A +D96W +E99K +L259V +G263Q +L264A +I265T +G266D +T267A +L269N

+270A +271G +272G +273F +274S +275WRRYRSAESVDKRATMTDAELEKKLNSYVQMDKEYVKNNQARS
V60G +D62W +R84W +G91A +D96F +E99K +G263Q +L264A +I265T +G266D +T267A +L269N
R84W +G91R +D96F +E99K +G263Q +L264A +I265T +G266D +T267A +L269N +270A +271G +272G +273F +274S +275WRRYRSAESVDKRATMTDAELEKKLNSYVQMDKEYVKNNQARS
V60C +D62H +R84W +G91A +D96F +E99K +G263Q +L264A +I265T +G266D +T267A +L269N
V60G +D62V +R84W +G91A +D96F +E99K +G263Q +L264A +I265T +G266D +T267A +L269N
V60K +D62L +R84W +G91A +D96F +E99K +G263Q +L264A +I265T +G266D +T267A +L269N
V60R +D62L +R84W +G91A +D96F +E99K +G263Q +L264A +I265T +G266D +T267A +L269N
V60G +D62G +R84W +G91A +D96W +V228A +E99K +G263Q +L264A +I265T +G266D +T267A +L269N +270A +271G +272G +273F +274S +275WRRYRSAESVDKRATMTDAELEKKLNSYVQMDKEYVKNNQARS
V60L +D62A +R84W +G91A +D96W +E99K +R125K +G263Q +L264A +I265T +G266D +T267A +L269N +270A +271G +272G +273F +274S +275WRRYRSAESVDKRATMTDAELEKKLNSYVQMDKEYVKNNQARS
D62E +R84W +G91A +D96W +E99K +G263Q +L264A +I265T +G266D +T267A +L269N +270A +271G +272G +273F +274S +275WRRYRSAESVDKRATMTDAELEKKLNSYVQMDKEYVKNNQARS
V60S +D62L +R84W +G91A +D96F +E99K +F262L +G263Q +L264A +I265T +G266D +T267A +L269N
D57G +V60Q +D62P +R84W +G91A +D96F +E99K +G263Q +L264A +I265T +G266D +T267A +L269N
R84W +G91A +D96W +E99K +L259R +G263Q +L264A +I265T +G266D +T267A +L269N +270A +271G +272G +273F +274S +275WRRYRSAESVDKRATMTDAELEKKLNSYVQMDKEYVKNNQARS
D62Q +R84W +G91A +D96W +E99K +G263Q +L264A +I265T +G266D +T267A +L269N +270A +271G +272G +273F +274S +275WRRYRSAESVDKRATMTDAELEKKLNSYVQMDKEYVKNNQARS
R84W +G91A +D96W +E99K +V203T +G263Q +L264A +I265T +G266D +T267A +L269N

+270A +271G +272G +273F +274S
+275WRRYRSAESVDKRATMTDAELEKKLNSYVQMDKEYVKNNQARS
R84S +S85T +G91A +D96S +T231R +N233R +L259P +G263Q +L264S +I265T +G266* +T267E +L269A

4. A polynucleotide encoding the polypeptide of any of claims 1-3.
5. A method of producing a polypeptide, comprising:
 - a) selecting a first polypeptide which has phospholipase activity and has an amino acid sequence which is at least 50 % identical to SEQ NO: 1,
 - 5 b) altering the amino acid sequence wherein the alteration comprises one or more substitutions or deletion corresponding to the following in SEQ ID NO: 1: D62Q/E/F/W/V/P/L/G; V60R/S/K; S85Y/T; G91R/E; V203T; V228A; T231R; N233R; L259R/V/P; a deletion D266*; and/or L269A, and
 - c) preparing a second polypeptide having the modified amino acid sequence.
- 10 6. The method of claim 5 wherein the selected polypeptide has lipase activity, and the method further comprises testing the lipase and phospholipase activities of the two polypeptides and selecting a second polypeptide having a lower lipase/phospholipase ratio than the first polypeptide.
7. A method for producing cheese, comprising the steps of:
 - 15 a) treating cheese milk or a fraction of the cheese milk with the polypeptide of any of claims 1-3 or a polypeptide produced by the method of claim 5 or 6; and
 - b) producing cheese from the cheese milk during or after step a).